Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Davenport Building

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
October 14, 2003

Table 1: Public Water System (PWS) Information

PWS Name	**Davenport Building**
PWS Address	**Route 143**
City/Town	**Chesterfield**
PWS ID Number	**1060001**
Local Contact	**Mr. William Enser**
Phone Number	**413-243-1416**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	1060001-01G	100	407	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The Davenport Building is located on the north side of Route 143 in the center of Chesterfield and was formerly the elementary school for the Town. A regional school was built in the late 1990 and the Davenport Building now is utilized for Town Offices, a daycare center and as a general community center. The estimated population for the facility is approximately 75 people. The Building is supplied by a single potable supply well (Well #1 –01G) located approximately 5 feet from the west side of the building.

The Zone I is the area immediately around the wellhead while the IWPA is a larger area that likely contributes water to the wellhead. The IWPA is only an interim protection area; the actual area of contribution to the wellhead may be larger or smaller. The current

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

well has a Zone I protective radius of 100 feet and an Interim Wellhead Protection Area (IWPA) radius of 408 feet based on estimated water use utilizing Title 5 flow volumes. Water use of less than 300 gallons per day was confirmed when the facility installed a meter during 2002. Please refer to the attached map that shows the Zone I and IWPA.

There are no records regarding the construction or depth of the well. The geologic map of the area shows complex bedrock structure in the area and describes the bedrock as the Goshen Formation, a quartzite and quartzite schist. The overburden is generally thin till with no evidence of a hydrologic barrier to potentially threatening activities at the ground surface. Wells drilled in these conditions are considered highly vulnerable to potential contamination from the ground surface because there is no significant hydrogeologic barrier, such as clay, to prevent surface contamination from migrating into the bedrock aquifer. At the time this report was prepared, water from the Building's well is not treated. You may request additional information regarding the quality of the water, from the local contact listed in Table 1.

Please refer to the following section, attached maps of the Zone I and IWPA and Table 2 for additional assessment information.

2. Discussion of Land Uses in the Protection Areas

During the assessment, several land uses and activities were identified within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Non-conforming Zone I,**
2. **Septic system components,**
3. **Floor drain in boiler room,**
4. **Parking and roadway, and**
5. **Residential uses.**

There are activities within Zone I that are not related to water supply and the well is located in an aquifer with a high vulnerability to contamination due to the absence of a significant hydrogeologic barrier to prevent contaminant migration from the surface. The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of several moderate threat land uses or activities in the Zone I and IWPA, as seen in Table 2.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Septic System components	No	Yes	Moderate	Refer to the attached septic system fact sheet.
Floor Drain in the boiler room to septic system	Yes	Yes	Moderate	Floor drain must be protected from accidental spills or connected to tight tank.
Parking area and roadway	Yes	Yes	Moderate	Storm water drains away from the wellhead.
Aboveground oil tank	Yes	Yes	Moderate	Tanks are in containment.
Residential land use	Yes	Yes	Moderate	Provide residents and staff with BMPs.

- **-For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

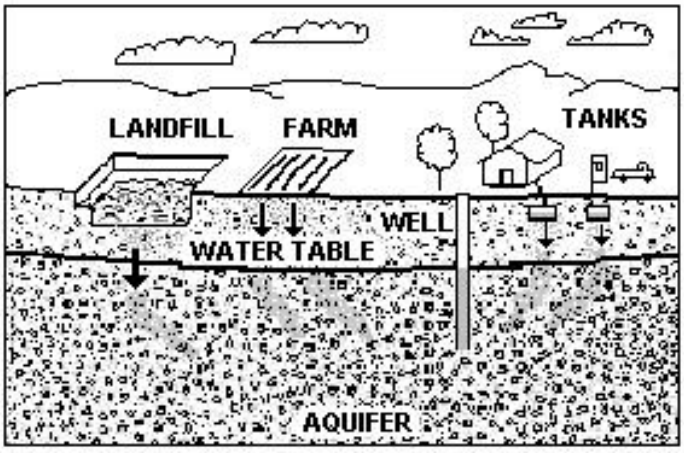

Figure 1: Example of how a well could become contaminated by different land uses and activities.

1. Non-conforming Zone I – Currently, the well does not meet DEP's restrictions which only allow water supply related activities or non-threatening activities in Zone I. The facility's Zone I contains the building, oil tanks, roads and parking areas. The public water supplier does not own and/or control all land encompassed by the Zone I. Systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Maintain contact with the DEP regarding alternatives to the existing source.
- ✓ Monitor activities within the Zone I and minimize, as much as is feasible, activities in Zone I.
- ✓ Do not store hazardous materials in the Zone I. Where household hazardous materials are required, keep the materials in containment and use the materials with extreme caution. Dispose of waste through household hazardous waste pick-ups or store securely and in containment.

2. Septic system components - The septic tank, grease trap, pipeline, distribution box and leachfield are all within the Zone I or IWPA of the well. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals or petroleum products to septic systems or discharge from the boiler room are also potential sources of contamination to the leachfield. The Highway Department is scheduled to have a tight tank installed for the garage.

Recommendations:

- ✓ Staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, certified operator, daycare staff and citizens that use the facility.
- ✓ Septic system components should be inspected and maintained on a regular basis.

3. Floor drain in the boiler room – Floor drains may be required in boiler rooms to provide drainage in the event of a plumbing failure. If there is a potential for oil or hazardous materials to flow accidentally into the floor drain, however, the floor drain must be sealed or connected to a tight tank if no sewer is available. Boiler compressor condensate is considered industrial wastewater, and therefore cannot be discharged to the septic system. The boiler room at the Building has a floor drain that is assumed to discharge to the septic system.

Recommendations:

- ✓ Prepare a written policy and plan for maintenance operations, especially when oil filters are changed. Require your boiler maintenance contractor to use containment, protect the drain and have absorbent materials on hand to prevent accidental leaks while conducting routine maintenance. Boiler blow down generated during routine maintenance cannot be discharged through the floor drain and must be disposed of off-site.
- ✓ If protection of the floor drain cannot be assured, seal the floor drain or a tight tank must be installed for the floor drain.
- ✓ Contact the DEP Underground Injection Control (UIC) program coordinator to discuss this issue (Rick Larson 413-755-2207 or Jim Gibbs 413-755-2299)

4. Parking and roadway - The parking areas and Route 143 are within the Zone I and IWPA of the well.

Recommendations:

- ✓ Use minimal road salt and deicers.

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Regional Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

- ✓ Monitor the parking lot for spills and leaks.
- ✓ Monitor runoff from the parking area to ensure it continues to flow away from the well.

2. Residential Land Uses – The Zone I and IWPA for Well #1 has medium-density residential land use. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and streams. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents. Visit the Nonpoint Source pollution web site for additional information at http://www.state.ma.us/dep/brp/wm/nonpoint.htm.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and online at the website - www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination.

Please review and adopt the key recommendations listed above and as follows:

Zone I and IWPA:

- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Conduct regular inspections of the Zone I and monitor the area for spills and leaks.
- ✓ Monitor oil delivery and storage.
- ✓ Post drinking water supply signs at key location such along the access road and in the parking area away from the well.
- ✓ Provide information to staff about the potential hazards of household chemicals, lawn care chemicals and fertilizers.
- ✓ Do not use fertilizer or pesticides.
- ✓ Use Best Management Practices (BMPs) for hazardous products.

Facilities Management:

- ✓ Septic system components should be maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Train staff on use of non-toxic materials cleaning and maintenance materials and in the handling of hazardous materials, including household hazardous materials.

Planning:

- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. If funds are available, each program year the Department posts a new Request for Response (RFR), grant application form. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area
- Recommended Source Protection Measures Fact sheet
- UIC Closure documents